

Stormwater Management Operation and Maintenance Manual

For

William Cummings

Proposed Residential Subdivision

*2 & 10 Ridge Road
Block 80.03, Lots 10 and 21
Township of West Orange, Essex County, NJ*

Prepared By:



1904 Main Street
Lake Como, NJ 07719
Tel. 732-974-0198

A handwritten signature in black ink, appearing to read 'Robert P. Freud'.

Robert P. Freud, PE., P.P
License No. 41938

January 2023
DEC # 4266-99-001

TABLE OF CONTENTS

	<u>Page No.</u>
PROJECT DETAILS	
A. Introduction and Description of Facilities	1
B. Project Contacts	2
C. Proposed Best Management Practices	3
INSPECTION & MAINTENANCE	
A. Routine Inspection and Maintenance of Bioretention Basin	3
1. Preventative Maintenance Procedures	4
2. Corrective Maintenance Procedures	8
3. Recording and Logging of all Maintenance Activities	10
4. Summary of Maintenance Procedures	11
B. Maintenance Equipment and Materials	11
C. Checklists and Logs	13
D. Estimated Maintenance Costs & Tasks	13
Appendix	
• Maintenance Work Order & Checklist	
• Maintenance Log	
• Inspection Log	

PROJECT DETAILS

A. Introduction and Description of Facilities:

The purpose of this report is to provide guidelines and information regarding the required maintenance for the proposed stormwater management facilities to be constructed in association with the development of Block 80.03, Lots 10 and 21 in the Township of West Orange, Essex County, New Jersey. The site is presently undeveloped. The existing conditions of the site have been verified by the ALTA/NSPS Land Title Survey as prepared by Dynamic Survey, LLC, dated 05/11/2022. Additionally, our office conducted several field visits to the subject parcels to supplement information provided on the aforementioned survey and to aid in design of the proposed development. The scope of the study includes the proposed which consists of subdividing into four (4) total lots and developing each parcel with four (4) new single-family houses with a prototypical footprint size of 40'x60' totaling approximately 9,600 SF with accompanying driveways. The proposed stormwater management system includes a stormwater collection system and four (4) bioretention with underdrain basins.

The stormwater management facilities will contribute toward the conveyance, storage, treatment and discharge of runoff generated by the proposed development. Every stormwater management system whether at grade or below grade, requires that basic periodic maintenance to be performed in order to maintain the proper functioning and operation of the system. This report will outline these procedures, further discuss responsibilities and highlight those responsible for performing said maintenance.

The proposed overall stormwater management system has been designed with four (4) bioretention basins with underdrains. The bioretention basins accept stormwater runoff from the proposed single-family homes, paved driveways and portions of pervious areas surrounding each basin. The bioretention basins have been designed to meet the green infrastructure requirements set forth by NJAC 7:8.

Detailed information regarding the design of the overall stormwater management system can be found in the Stormwater Management, Groundwater Recharge, and Water Quality Analysis Report, prepared by Dynamic Engineering Consultants, PC. The following information can be considered a guideline for the continued maintenance including suggested inspection scheduling as well as performance objectives.

Each bioretention basin and stormwater system is designed to independently serve the lot on which it stands. As such, each individual lot owner will have responsibility for inspection and maintenance of the facility on their lot. These facilities will require periodic inspections and maintenance. The following information can be considered a guideline for the continued maintenance including suggested inspection scheduling as well as performance objectives.

B. Project Contacts:

The individual property owner is responsible to maintain a detailed log of all preventative and corrective maintenance actions for the constructed stormwater facilities incorporated into the design, including record of all inspections and copies of all maintenance-related work orders.

The individual property owner is also responsible for maintenance to evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and deed as needed. The owner shall retain a copy of this report onsite should a public entity request this report or documentation of said maintenance in the future.

Property/System Owner:

William Cummings
280 Woodland Avenue
Summit, NJ 07901

Design Engineer:

Robert P. Freud, PE., P.P
Dynamic Engineering Consultants, PC
1904 Main Street
Lake Como, NJ 07719
(732) 974-0198

Municipal Engineer:

Len Lepore
66 Main Street
West Orange, NJ 07052

As previously mentioned, this manual, including any future revisions, must be recorded upon the deed of record of the property.

C. Proposed Best Management Practices:

Bioretention Basin

The proposed bioretention basin has been designed to address the applicable aspects of N.J.A.C. 7:8 and the Township of West Orange Land Use Ordinance. The bioretention basins are designed to accept stormwater runoff from the proposed single-family homes, paved driveways as well as the surrounding pervious areas. The bioretention basins are designed as a water quality and quantity measure. Stormwater runoff that is detained within each bioretention basins shall drain within less than 72 hours. If significant increases or decreases in this drain time are observed, a qualified licensed Professional Engineer shall be contacted to evaluated possible corrective measures that may be required.

The bioretention basin has been designed with underdrains, as well as a 6" sand layer under a minimum 24" of topsoil to provide water quality benefits. If the basin bottom is disturbed during any preventative or corrective maintenance measures, the bottom of the basin shall be reestablished with the 6" of clean K5 sand covered with 24" topsoil and seeded with the basin seed mix specified per appropriate design specifications.

INSPECTION AND MAINTENANCE:

A. Routine Inspection and Maintenance of the Stormwater Management Facilities:

All stormwater management basins have been designed to control stormwater and reduce flooding and degradation of water quality. Without proper routine inspection and maintenance, the system may lose some or all of its capability to function to its full capacity. Lack of adequate maintenance at these facilities could lead to system failures.

A consulting Professional Engineer should perform regularly scheduled maintenance inspections of the stormwater facilities expected to receive and/or trap debris and sediment at least one (1) time each year as well as after every storm exceeding 1 inch of rainfall. The primary purpose of these inspections is to ascertain the operational condition and safety of the facilities, particularly the condition of the outlet structures, and other safety-related aspects. Inspections will also provide information on the effectiveness of regularly scheduled Preventative Maintenance Procedures, and will help to identify where changes in the extent and scheduling of the procedures are warranted.

Finally, the facility inspections should also be used to determine the need for and timing of Corrective Maintenance procedures.

Routine maintenance is further broken down into two (2) categories: Preventative and Corrective. Listed below are the Preventative and Corrective Maintenance Procedures to be performed on a routine basis:

1. Preventive Maintenance Procedures:

The purpose of Preventative Maintenance is to maximize the effectiveness of the stormwater management aspects of the system so that it remains operational and safe as often as practicable, and to minimize the need for emergency or corrective maintenance. These procedures are as follows:

- a) Grass Cutting:

A regularly scheduled program of mowing and trimming of grass at the basin during the growing season will help to maintain a tightly knit turf, and will also help to prevent diseases, pests and the intrusion of weeds. The actual mowing requirements of an area should be tailored to the specific site conditions, grass type, and seasonal variations in the climate. In general, lawn areas should be mowed at least once a month during the growing season and grass should not be allowed to grow more than 1 to 2 inches between cuttings. Allowing the grass to grow more than this amount prior to cutting it may result in damage to the grass' growing points and limit its continued healthy growth.

- b) Grass Maintenance:

Grassed areas require periodic fertilizing, de-thatching and soil conditioning in order to maintain healthy growth and to provide bank stabilization. Additionally, provisions should be made to re-seed and re-establish grass cover in areas damaged by sediment accumulation, stormwater flow, or other causes. These tasks should be performed, or at least evaluated, on a quarterly basis.

c) Vegetative Cover

Trees, shrubs, and ground cover require periodic maintenance, including fertilizing, pruning, and pest control in order to maintain healthy growth. Vegetated areas must be inspected at least annually for erosion and scour as well as unwanted growth, which should be removed with minimum disruption to the remaining vegetation. The basin should be evaluated regularly to determine whether excessive plant growth is evident. A correction in the application of fertilizers can often solve these problems. Weeds, which have become a problem, can be cleared through harvesting by professional maintenance technicians.

Note: All use of fertilizers, mechanical treatments, pesticides and other means to ensure optimum vegetation health must not compromise the intended purpose of the storm water management facility. All vegetation deficiencies should be addressed without the use of fertilizers and pesticides whenever possible.

d) Removal and Disposal of Trash/Debris and Sediment:

All storm water management components expected to receive and/or trap debris and sediment must be inspected for clogging and excessive debris and sediment accumulation at least four times annually as well as after every storm exceeding one inch of rainfall. Such components may include the stormwater conveyance network (piping & inlet), flared end sections and outlet control structure.

These stormwater management components shall be visually inspected for the accumulation of excessive sediment as well as damage in the form of cracking, erosion and rutting. Sediment build up within the stormwater conveyance network shall be removed with the use of flushing. Sediment laden water is to be captured with the use of a pipe plug, or approved equal, prior to the storage bed and simultaneously pumped out with the use of pump with sediment bag. Sediment should be disposed of in accordance with all applicable local, state and federal regulations.

Removal of trash and debris will prevent possible damage to outlet structure openings and eliminate potential mosquito breeding habitats. Debris and trash must be properly hauled off the site and transferred to an approved disposal site.

The system should also be evaluated for excessive deposition of sediment. Accumulated sediment should be removed utilizing light weight equipment to avoid soil compaction before it threatens the storage volume of the system. Before de-sedimentation activities are performed, consideration should be given to evacuating all standing water from the system. This may be accomplished by clearing any blocked openings of the outlet structure or by mechanical means (pumping). Disposal of discharged water and sediment must comply with all local, county, state and federal regulations. Only suitable disposal sites should be utilized. If stable soil conditions exist on site, sediment deposition should not be an excessive maintenance issue. Should a recurrent stabilization situation develop, the inspector should identify the upstream sources of sediment and recommend required stabilization measures. Access has been provided for inspection and maintenance of the system and its components.

e) Sediment Removal and Disposal:

The basin should also be evaluated for excessive deposition of sediment. Accumulated sediment should be removed before it threatens the storage volume of the basin. Before de-sedimentation activities are performed, consideration should be given to evacuating all standing water from the basin. This may be accomplished by clearing any blocked openings of the outlet structure or by mechanical means such as pumping. If stable soil conditions exist on-site, sediment deposition should not be an excessive maintenance issue. Should a recurrent stabilization situation develop, the inspector should identify the upstream sources of sediment and recommend required stabilization measures.

f) Mechanical Components:

Mechanical components such as valves, sluice gates, pumps, fence gates, locks, and access hatches, should remain functional at all times. Regularly scheduled maintenance should be performed in accordance with the manufactures' recommendations. Additionally, all mechanical components should be operated at least once every three months to assure their continued performance.

g) Elimination of Potential Mosquito Breeding Habitats:

The most effective mosquito control program is one that eliminates potential breeding habitats. Almost any stagnant pool of water can be attractive to mosquitoes, and may become the source of a large mosquito population. A maintenance program dedicated to eliminating potential breeding areas is preferable to chemical means of controlling mosquitoes. The most important maintenance functions, is removal of all obstructions to natural flow patterns before stagnant water conditions can develop.

h) Observations After Rainfall:

This management measure involves monitoring the amount of time the bioretention basin takes to drain to ensure the basin is working properly. The bioretention basin should drain to the bottom in less than 72 hours. If significant increases or decreases are observed in the drawdown time, a qualified licensed Professional Engineer shall be contacted to evaluate the basin's bottom surface, subsoil and both groundwater and tailwater elevations to determine what corrective measures may need to be implemented.

i) Vegetation Maintenance:

All landscaped areas within the aboveground basin shall be periodically inspected a minimum of once per month and every two weeks during growing season or after each mowing session. In general, mowing should occur at least once a month during the growing season. Clippings from the mowing operations shall be removed and disposed of in accordance with all local, state and federal regulations. Reseeding, if required, shall occur within spring or early fall. Summer and fall seeding can be successful with a light mulching of weed-free straw to conserve moisture.

All landscaped areas shall be inspected for invasive plant species. Invasive species should be removed immediately and properly disposed of at an approved disposal site.

j) Bioretention Underdrain Inspection Points:

The Bioretention Basin is designed to include a network of 4" perforated pipe underdrains installed at a 0.3% slope. The underdrain is the only outflow of stormwater

runoff that infiltrates into the basins' planting soil bed; the basin is not designed to infiltrate into the subsoil and a liner is proposed to capture and convey runoff into the underdrains. Clean-out inspection ports are located at the ends of all underdrain pipes, with WQ, 2-,10-,100- year design storm elevations indicated on the cleanout risers; these elevations are to be referenced to ensure the bioretention basin are functioning as designed during storms of the same magnitude.

2. Corrective Maintenance Procedures:

a) Removal of Debris and Sediment:

Sediment, debris and trash which threaten the discharge capacity of the system should be removed immediately with the use of light weight equipment to avoid soil compaction and properly disposed. As noted previously, it is recommended that all water be evacuated from the system with a pump before any significant amount of sediment, settled debris or trash is removed from the system. The lack of an available disposal site should not delay the removal of trash, debris and sediment. Temporary disposal sites should be utilized if necessary.

b) Structural Repairs:

Structural damage to outlet and inlet structures and access hatches as a result of flood events, settlement or other causes must be repaired promptly. The urgency of the repairs will depend upon the nature of the damage and its effects on the safety and operation of the facility. The analysis of structural damage and the design and performance of structural repairs should only be undertaken by the consulting Professional Engineer.

c) Embankment and Slope Repairs:

Damage to embankments, and side slopes must be repaired promptly. This damage can be the result of rain or flood events, vandalism, animals, vehicles or neglect. Typical problems include settlement, scouring, cracking, sloughing, seepage and rutting. The urgency of the repairs will depend upon the nature of the damage and its effect on the safety and operation of the facility. The analysis of the damage and the design and performance of geotechnical repairs should only be undertaken by qualified personnel

and under the direction of a consulting Professional Engineer. All basin embankments shall be inspected quarterly and after each significant storm greater than one (1) inch of rainfall. Any damage or indication of erosion shall be immediately inspected by a professional engineer.

d) Dewatering:

It may be necessary to remove ponded water from within a malfunctioning basin. This ponding may be the result of a blocked principal outlet or poor bottom drainage. Portable pumps may be necessary to remove the ponded water temporarily until a permanent solution can be implemented.

e) Weed Harvesting:

It may be necessary to remove congested weeds from the basin. Companies with specialized harvesters should be contacted to perform these operations. Note that such work may require the approval of various regulatory agencies.

f) Extermination of Mosquitoes:

If neglected, basins can become an ideal mosquito breeding area. The extermination of mosquitoes will usually require the services of the County Mosquito Commission. If mosquito control in the facility becomes necessary, the preventative maintenance program should be re-evaluated, and more emphasis should be placed on control of mosquito breeding habitats.

g) Erosion Repair:

Vegetative cover or other protective measures are necessary to prevent the loss of soil due to the forces of wind and water. Where a re-seeding program has not been effective in maintaining a non-erosive vegetative cover, or other factors have exposed soils to erosion, corrective steps should be initiated to prevent further loss of soil that may result in danger to the stability of the facility. Soil loss can be controlled by a variety of materials and methods, including rip-rap, gabion lining, geotextile fabrics, sod, seeding, concrete lining and re-grading.

h) Elimination of Trees, Brush, Roots, and Animal Burrows:

The stability of embankments can be impaired by large roots and animal burrows. Additionally, burrows can present a safety hazard for maintenance personnel. Trees and brush with extensive, woody root systems should be completely removed to prevent destabilization and the creation of seepage routes. Roots should also be completely removed to prevent decomposition within the embankment. Root voids and burrows should be filled with material similar to the existing material, and capped just below grade with stone, concrete or other material. If the filling of the burrows does not discourage the animals from returning, further measures should be taken to either move the animal population or to make critical areas of the facility unattractive to them.

i) Snow and Ice Removal:

Accumulations of snow and ice can threaten the functioning of the inlets, outlets and emergency spillways. Provision of the equipment, material and personnel to monitor and remove snow and ice from critical areas will assure the function of the facility during the winter months.

3. Recording and Logging of all Maintenance Activities:

The recording of all maintenance work and inspections provide valuable data on the facility's condition. Review of this information will also help to establish more efficient and beneficial maintenance procedures and practices. All recorded information should be directed to the owners of the basin for review and subsequent follow-up on recommendations. Data obtained from informal inspections should be retained; however, this data does not have to be submitted to NJDEP. A copy of all records and logs of maintenance activities shall be submitted to the Township Engineer annually for review.

4. Summary of Maintenance Procedures:

Preventative Maintenance

- a) Grass Cutting
- b) Grass Maintenance
- c) Vegetative Cover
- d) Removal and Disposal of Trash/Debris and Sediment
- e) Sediment Removal and Disposal
- f) Mechanical Components
- g) Elimination of Potential Mosquito Breeding Habitat
- h) Observation After Rainfall
- i) Vegetation Maintenance
- j) Bioretention Underdrain Inspection Points

Corrective Maintenance

- a) Removal of Debris and Sediment
- b) Structural Repairs
- c) Embankment and Slope Repairs
- d) Dewatering
- e) Weed Harvesting
- f) Extermination of Mosquitoes
- g) Erosion Repair
- h) Elimination of Trees, Brush, Roots, and Animal Burrows
- i) Snow and Ice Removal

B. Maintenance Equipment and Materials

1. Transportation Equipment

- a) Trucks for Transportation of Materials
- b) Trucks for Transportation of Equipment
- c) Vehicles for Transportation of Personnel

2. Debris, Trash and Sediment Removal Equipment

- a) Backhoe
- b) Portable pump for dewatering with sediment bag

3. Miscellaneous Equipment

- a) Shovels
- b) Rakers
- c) Picks
- d) Wheel Barrows
- e) Gloves
- f) Brooms

4. Standard Mechanics Tools

5. Tools for Maintenance of Equipment

6. Materials

- a) Topsoil
- b) Fill
- c) Seed
- d) Soil Amenities (Fertilizer, Lime, etc.)
- e) Chemicals (Pesticides, Herbicides, etc.)
- f) Mulch
- g) Spare Parts for Equipment

7. Parking Maintenance Equipment

- a) Sweeping/Vacuuming Equipment
- b) Snow Plowing Equipment
- c) Snow Shovels

C. Checklists and Logs

The Appendix of this report contains sample checklists and logs regarding various aspects of the system maintenance and inspection. A brief description of the use of each form is listed below:

1. “Maintenance Work Order and Checklist” – a comprehensive form outlining both required and completed maintenance work.
2. “Maintenance Log” – a summary table for recording of all maintenance work at the site.
3. “Inspection Log” – a summary table for recording the results of all inspection of the system.

D. Estimated Maintenance Costs and Tasks

The following is a summary of the required maintenance tasks and associated costs in written and tabular form:

- Inspections to be performed by a consulting engineer on an annual basis. - **\$1,000.00.**
- Inspections to be performed by the property owner and/or a maintenance designee on a monthly basis and/or after a storm event exceeding 1 inch of rainfall– **Minimal cost associated – Owners responsibility - \$500.00.**
- Stormwater conveyance system and outlet control structure access for debris removal to be performed on an annual basis and/or as inspection routine dictates - **\$2,000.00.**
- Surface debris removal including garbage and organic matter to be performed in conjunction with lawn and grounds maintenance, includes leave removal in the Fall and removal of excessive amounts of snow, if necessary, in the Winter. These tasks are encouraged as necessary to maintain safe operating conditions (twice a month from Spring through Winter recommended or on as needed basis) - **\$1,000.00.**

Maintenance Schedule Summary

Task Identification	Task Frequency	Task Estimated Cost
Inspection by licensed professional consulting engineer	Once (1) per year	\$1,000.00/Each
Inspection by property owner and/or maintenance designee	Once (1) per month (or after a storm event exceeding 1 inch of rainfall)	\$500.00/Each
Debris removal from stormwater conveyance system (inlets, pipes, manholes, flared end sections, and outlet control structure)	Once (1) per year	\$2,000.00
Surface debris removal (garbage & organic matter) including leaves in the Fall and snow in the Winter	Twice (2) per month (or on needed basis)	\$1,000.00/Each

APPENDIX

MAINTENANCE WORK ORDER AND CHECKLIST

**MAINTENANCE WORK ORDER AND CHECKLIST
FOR STORMWATER MANAGEMENT FACILITIES**

NAME OF FACILITY: _____
 LOCATION: _____ DATE: _____
 WEATHER: _____ WORK STARTED: _____
 MAINTENANCE PERFORMED BY: _____ WORK COMPLETED: _____

A. PREVENTATIVE MAINTENANCE			
WORK ITEMS	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. GRASS CUTTING			
A. BOTTOMS			
B. EMBANKMENTS AND SIDE SLOPES			
C. PERIMETER AREAS			
D. ACCESS AREAS AND ROADS			
E. OTHERS			
2. GRASS MAINTENANCE			
A. FERTILIZING			
B. RE-SEEDING			
C. DE-THATCHING			
D. PEST CONTROL			
E. OTHERS			
3. VEGETATIVE COVER			
A. FERTILIZING			
B. PRUNING			
C. PEST CONTROL			
D. POISONOUS PLANTS			
E. OTHERS			
4. TRASH AND DEBRIS REMOVAL			
A. BOTTOMS			
B. EMBANKMENTS AND SIDE SLOPES			
C. PERIMETER AREAS			
D. ACCESS AREAS AND ROADS			
E. INLETS			
F. OUTLETS AND TRASH RACKS			
G. OTHERS			
5. SEDIMENT REMOVAL			
A. INLETS			
B. OUTLETS AND TRASH RACKS			
C. LOW FLOW CHANNELS			
D. BOTTOMS			
E. OTHERS			
6. PEST CONTROL			
A. GEESE			
B. MOSQUITO BREEDING			
C. RODENTS / RODENT HOLES			
D. OTHERS			
7. STRUCTURAL REPAIRS			
A. VALVES			
B. SLUICE GATES			
C. PUMPS			
D. FENCE GATES			
E. LOCKS			
F. ACCESS HATCHES			
G. OTHER:			
8. POND MAINTENANCE			
A. AERATION EQUIPMENT			
B. DEBRIS AND TRASH REMOVAL			
C. WEED REMOVAL			
D. OTHER:			
9. OTHER PREVENTIVE MAINTENANCE			
A. PARKING LOT SWEEPING			
B. EMPTYING TRASH RECEPTACLES			
C. PUMPS AND VALVES			
D. ELECTRICAL PANEL AND WIRING			
E. DEWATERING			
F. GRAFFITI REMOVAL			
E. OTHER:			

B. CORRECTIVE MAINTENANCE			
WORK ITEMS	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. REMOVAL OF DEBRIS AND SEDIMENT			
2. STRUCTURAL REPAIRS			
3. EMBANKMENTS AND SIDE SLOPES			
4. DEWATERING			
5. BASIN MAINTENANCE			
6. CONTROL OF MOSQUITOES			
7. EROSION REPAIR			
8. FENCE REPAIR			
9. SNOW AND ICE REMOVAL			
10. SAND LAYER REPLACEMENT			
11. OTHER			

C. AESTHETIC MAINTENANCE			
WORK ITEMS	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. GRAFFITI REMOVAL			
2. GRASS TRIMMING			
3. WEEDING			
4. OTHERS			

GENERAL NOTES AND REMARKS:

WORK ORDER PREPARED BY: _____

WORK COMPLETED BY: _____

MAINTENANCE LOG

MAINTENANCE LOG FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY: _____
LOCATION: _____

[illegible]

A. PREVENTATIVE MAINTENANCE							
WORK ITEM	(√) COMPLETED						
1. GRASS CUTTING							
A. BOTTOMS							
B. EMBANKMENTS AND SIDE SLOPES							
C. PERIMETER AREAS							
D. ACCESS AREAS AND ROADS							
E. OTHERS							
2. GRASS MAINTENANCE							
A. FERTILIZING							
B. RE-SEEDING							
C. DE-THATCHING							
D. PEST CONTROL							
E. OTHERS							
3. VEGETATIVE COVER							
A. FERTILIZING							
B. PRUNING							
C. PEST CONTROL							
D. POISONOUS PLANTS							
E. OTHERS							
4. TRASH AND DEBRIS REMOVAL							
A. BOTTOMS							
B. EMBANKMENTS AND SIDE SLOPES							
C. PERIMETER AREAS							
D. ACCESS AREAS AND ROADS							
E. INLETS							
F. OUTLETS AND TRASH RACKS							
G. OTHERS							
5. SEDIMENT REMOVAL							
A. INLETS							
B. OUTLETS AND TRASH RACKS							
C. LOW FLOW CHANNELS							
D. BOTTOMS							
E. OTHERS							
6. PEST CONTROL							
A. GEESE							
B. MOSQUITO BREEDING							
C. RODENTS / RODENT HOLES							
D. OTHER:							
7. MECHANICAL COMPONENTS							
A. VALVES							
B. SLUICE GATES							
C. PUMPS							
D. FENCE GATES							
E. LOCKS							
F. ACCESS HATCHES							
G. OTHER:							
8. POND MAINTENANCE							
A. AERATION EQUIPMENT							
B. DEBRIS AND TRASH REMOVAL							
C. WEED REMOVAL							
D. OTHER:							
9. OTHER PREVENTIVE MAINTENANCE							
A. PARKING LOT SWEEPING							
B. EMPTYING TRASH RECEPTACLES							
C. PUMPS AND VALVES							
D. ELECTRICAL PANEL AND WIRING							
E. DEWATERING							
F. GRAFFITI REMOVAL							
E. OTHER:							

B. CORRECTIVE MAINTENANCE											
WORK ITEM	(✓) COMPLETED										
1. REMOVAL OF DEBRIS AND SEDIMENT											
2. STRUCTURAL REPAIRS											
3. EMBANKMENTS AND SIDE SLOPES											
4. DEWATERING											
5. BASIN MAINTENANCE											
6. CONTROL OF MOSQUITOES											
7. EROSION REPAIR											
8. FENCE REPAIR											
9. SNOW AND ICE REMOVAL											
10. SAND LAYER REPLACEMENT											
11. OTHER											

C. AESTHETIC MAINTENANCE											
FACILITY ITEM	(✓) COMPLETED										
1. GRAFFITI REMOVAL											
2. GRASS TRIMMING											
3. WEEDING											
4. OTHERS											

GENERAL NOTES AND REMARKS (REFER TO ITEM NUMBER IF APPLICABLE)

INSPECTION LOG

INSPECTION LOG FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY: _____

LOCATION: _____

[illegible][illegible]

[illegible][illegible][illegible]

A. EFFECTIVENESS OF EXIST. MAINT. PROGRAM									
B. DAM INSPECTIONS									
C. POTENTIAL MOSQUITO HABITATS									
D. MOSQUITOES									

- GENERAL NOTES AND REMARKS (REFER TO ITEM NUMBER IF APPLICABLE)